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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/327.621 06/08/99 OHTOMO T 101809.03

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MMC1/0713

EXAMINER

KIM.P

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 07/13/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.
09/327,621

Applicant(s)
Ohtomo et al.

Examiner
PETER KIM

Group Art Unit
2851



☒ Responsive to communication(s) filed on Jun 20, 2000

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 26-94 and 97-104 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 26-94 and 97-104 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☒ The drawing(s) filed on Jun 8, 1999 is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☒ received in Application No. (Series Code/Serial Number) 08/935,445

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Group III, Claims 26-94 and 97-104 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the subject matter of the groups are related. This is not found persuasive because Groups I, II and II are classified under different class and subclass and the search required for one group is not required for the other.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the fine adjustment stage for mounting the substrate as claimed in Claims, 28, 48, 59, 61, 76, 77, and 89 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

3. The disclosure is objected to because of the following informalities: On page 28, line 5, instead of "a pair of magnets 64 and 65," "a pair of magnets 64 and 66" seems more appropriate.

Appropriate correction is required.

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Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 28, 37, 45, 48, 53, 58, 59-65, 70, 75, 76-82, 87, 89, 94, 99 and 100 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding Claims 28, 48, 59, 61, 76, 77 and 89, a substrate mounted on the fine adjustment stage is not disclosed in the specification.

Regarding Claims 37, 45, 53, 58, 65, 70, 75, 82, 87, 94, the subactuators are not disclosed in the specification.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 26-29, 37, 45, 46-53, 54-58, 59-65, 70, 75, 76-82, 87, 89, 94, 97- 99 and 100 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claims 26 and 46, "scanning an object of scanning" is indefinite and confusing.

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Regarding Claim 54, "the following elements" and "the following order" lack proper antecedent basis in the claims.

Regarding Claims 28, 48, 59, 61, 76, 77 and 89, a substrate mounted on the fine adjustment stage lacks proper antecedent basis in the disclosure.

Regarding Claims 37, 45, 53, 58, 65, 70, 75, 82, 87, 94, the subactuators lacks proper antecedent basis in the disclosure.

The remaining claims, not specifically mentioned, are rejected for incorporating the defects from the base claim by dependency.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 26-94 and 97-104 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 and 24-68 of copending Application No. 09/227,184. Although the conflicting claims are not identical, they are

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not patentably distinct from each other because both claims disclose stage system with scanning stage and fine adjustment stages where fine adjustment moves in the same direction as the scanning stage as well as the direction perpendicular to the scanning stage direction. The thrust of the fine adjustment stage in the direction parallel to the scanning stage direction is greater than the thrust in the direction perpendicular to the scanning stage direction. Both applications also claim a cooling unit cools the actuators of the fine adjustment stage.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claims 30, 38, 54, 66, 71, 76, 83 and 88-90 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 5,850,280. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claims disclose stage system with scanning stage and fine adjustment stages where fine adjustment moves in the same direction as the scanning stage as well as the direction perpendicular to the scanning stage direction. The thrust of the fine adjustment stage in the direction parallel to the scanning stage direction is greater than the thrust in the direction perpendicular to the scanning stage direction.

11. Claims 26-29, 31-37, 39-45, 46-53, 55-58, 59-65, 67-70, 72-75, 77-82, 84-87, 91-94 and 97-104 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 5,850,280 in view of Negishi.

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Claims 1 and 2 of U.S. Patent 5,850,280 claim a method of driving a stage of a scanning apparatus which illuminates the mask on which a transfer pattern is formed and scans the mask in a predetermined scanning direction and synchronously scans the substrate in a direction corresponding to the scanning direction, exposing the pattern on the mask onto the substrate with a step for driving a stage in the scanning direction where the stage is used for scanning one of the mask and the substrate, a step of driving a fine adjustment stage in a direction perpendicular the scanning direction, where the fine adjustment stage is arranged to be movable in the scanning direction and in the direction perpendicular to the scanning direction with respect to the scanning stage, and the fine adjustment stage mounts the mask and a step of driving the fine adjustment stage is the scanning direction by a larger thrust than the thrust for driving the fine adjustment stage in the direction perpendicular to the scanning direction. However, U.S. Patent 5,850,280 does not claim the exact means for moving the stages and the means of cooling the means for moving the stages. Negishi discloses in Figures 1-4 and column 3, line 20 through column 7, line 35, electromagnetic actuators for moving the scanning stages of an exposure apparatus in x- and y-directions. Negishi discloses the stationary member having a coil of the electromagnetic actuator located on the stationary base relative to the moving stage and the movable magnetic portion located on the moving stage. Negishi also discloses cooling unit that cools the stationary member of the electromagnetic actuator. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the base for holding the scanning and fine adjustment stages and the electromagnetic actuators and the cooling unit in

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view of Negishi to the invention of U.S. Patent 5,850,280 in order to more efficiently produce semiconductor elements or liquid crystal display element which is well known product of scanning exposure apparatus.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 26-94 and 97-104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi in view of Negishi.

Nishi discloses in Figures 1 and 2 and column 8, line 14 through column 10, line 4, a projection exposure apparatus with a base (ref. 19) which holds the scanning stage (ref. 20) and the fine adjustment stage (ref. 21) which holds the mask (ref. 7) and movable mirror (ref. 33, 34A, 34B) for laser interferometers (ref. 35, 36A, 36B) which detect a displacement of the fine adjustment stage. Nishi also discloses the illumination system (ref. 22), projection optical system (ref. 13), substrate (ref. 14) and substrate stage with movable mirror and laser interferometer. Although Nishi does not disclose the substrate located on the fine adjustment stage and the scanning stage, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the substrate stage with such an arrangement. Nishi discloses a means for

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moving the stage but Nishi does not disclose electromagnetic actuators. Negishi discloses in Figures 1-4 and column 3, line 20 through column 7, line 35, electromagnetic actuators for moving the scanning stages of an exposure apparatus in x- and y-directions. Negishi discloses the stationary member having a coil of the electromagnetic actuator located on the stationary base relative to the moving stage and the movable magnetic portion located on the moving stage. Negishi also discloses cooling unit that cools the stationary member of the electromagnetic actuator. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the base for holding the scanning and fine adjustment stages and the electromagnetic actuators and the cooling unit in view of Negishi to the invention of Nishi in order to more efficiently produce semiconductor elements or liquid crystal display element which is well known product of scanning exposure apparatus.

Conclusion

14. All claims are rejected.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Kim whose telephone number is (703) 305-0105. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays during the same hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams, can be reached on (703) 308-2847. Any inquiry of a general nature or relating to

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the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.


PBK

6/30/00


Russell Adams
Primary Examiner